

NATIONAL INSTITUTE OF JUSTICE COMPLIANCE TEST REPORT

Perforation and BFS Summary Data

Report Number: OBL001 Test ID: EAS09-001674 Report Date: 05/04/10
 Manufacturer: EASI Model Designation: QC Squared 3-A NIJ Armor Type: 3A

Threat 1 - Conditioned Armor
 Ammunition: .357 SIG 125/FMJ Test Velocity: 1410 ± 30 ft/s Water Submersion: No
 Shot-to-Edge: 2 inches

Shot Number	Sample 21 Size: C2				Sample 22 Size: C5			
	Front Panel		Back Panel		Front Panel		Back Panel	
	Avg. Vel. (ft/sec)	Perf (Y=1/N=0)	BFS (mm)	Note	Avg. Vel. (ft/sec)	Perf (Y=1/N=0)	BFS (mm)	Note
1	1433.0	0	30.6		1427.0	0	27.4	
2	1418.0	0	35.7		1415.5	0	34.8	
3	1430.5	0	30.1		1413.5	0	29.4	
4	1429.5	0			1415.5	0		
5	1411.0	0			1418.5	0		
6	1448.5	0			1423.0	0		
7								
8								
Summary: Perforations: 0 (Pass) Maximum BFS: 35.7 mm (no requirement)					Perforations: 0 (Pass) Maximum BFS: 32.3 mm (no requirement)			

Threat 2 - Conditioned Armor
 Ammunition: .44 Mag 240/SJHP Test Velocity: 1340 ± 30 ft/s Water Submersion: No
 Shot-to-Edge: 3 inches

Shot Number	Sample 23 Size: C2				Sample 24 Size: C5			
	Front Panel		Back Panel		Front Panel		Back Panel	
	Avg. Vel. (ft/sec)	Perf (Y=1/N=0)	BFS (mm)	Note	Avg. Vel. (ft/sec)	Perf (Y=1/N=0)	BFS (mm)	Note
1	1343.5	0	37.8		1341.5	0	35.5	
2	1349.5	0	40.4		1341.5	0	42.3	
3	1340.5	0	39.6		1353.5	0	38.8	
4	1344.0	0			1342.5	0		
5	1341.5	0			1336.5	0		
6	1344.5	0			1345.5	0		
7								
8								
Summary: Perforations: 0 (Pass) Maximum BFS: 42.3 mm (no requirement)					Perforations: 0 (Pass) Maximum BFS: 44.5 mm (no requirement)			

Overall P-BFS Summary

Perforations: This requirement is for all P-BFS tested samples - New and Conditioned

0 This armor model meets the perforation performance requirements of NIJ Standard-0101.06 Section 7.8.8.

Backface Signature: This requirement is for New armors only

Maximum BFS: 43.3 mm

This armor model meets the BFS performance requirements of NIJ Standard-0101.06 Section 7.8.8 Item a.

#NAME?

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Ballistic Limit Summary Data

Report Number: OBL001 Test ID: EAS09-001674 Report Date: 05/04/10
 Manufacturer: EASI Model Designation: QC Squared 3-A NIJ Armor Type: 3A
 Threat 1 - New Armor
 Ammunition: .357 SIG 125/FMJ Reference Velocity: 1470 ± 30 ft/s Water Submersion: No

Shot Number	Sample 11			Sample 11			Sample 12			Sample 12			Sample 13		
	Front	Panel		Back	Panel		Front	Panel		Back	Panel		Front	Panel	
	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note
	(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)	
1	1478.5	0		1462.5	0		1476.5	0		1465.5	0		1450.0	0	
2	1597.5	0		1567.5	0		1596.5	0		1584.5	0		1577.5	0	
3	1697.0	0		1697.5	0		1674.5	0		1680.0	0		1681.5	0	
4	1825.5	1		1803.0	0		1789.0	0		1796.5	0		1785.5	0	
5	1740.0	0		1889.0	1		1913.0	1		1894.0	1		1897.0	1	
6	1811.0	0		1819.5	1		1852.0	1		1837.5	1		1828.5	1	
7	1851	1		1746	1		1805	1		1776.5	1		1762	1	
8	1799	0		1651	0		1756	0		1710.5	0		1701	0	
9	1844	0		1695	0		1776	0		1750	0		1762	0	
10	1872	1		1752	0		1836	0		1789	0		1797.5	0	
11	1845.5	0		1791	0		1909	0		1848.5	1		1843.5	1	
12	1904.5	1		1841	0		1935	1		1779	0		1792.5	0	
13															
14															
15															

Shot Number	Sample 13			Sample 14			Sample 14			Sample 15			Sample 15		
	Back	Panel		Front	Panel		Back	Panel		Front	Panel		Back	Panel	
	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note
	(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)	
1	1488.5	0		1475.5	0		1455.5	0		1461.0	0		1479.5	0	
2	1602.0	0		1585.0	0		1599.0	0		1594.0	0		1593.0	0	
3	1673.0	0		1694.5	1		1688.0	0		1683.0	0		1694.0	0	
4	1791.0	1		1628.0	0		1775.0	0		1790.0	0		1786.0	0	
5	1679.5	0		1673.5	0		1901.5	0		1894.5	1		1892.0	1	
6	1741.0	0		1700.0	0		1951.5	1		1825.5	1		1805.5	1	
7	1787	0		1757	0		1860.5	1		1754	0		1777	0	
8	1836	0		1791	1		1786.5	1		1791	0		1849	1	
9	1888.5	1		1785	0		1703	0		1848	1		1794.5	1	
10	1850.5	1		1830	0		1763	0		1778	0		1737	0	
11	1790.5	1		1895.5	1		1799	0		1848	1		1775	1	
12	1747	0		1856.5	1		1864.5	1		1796.5	0		1726	0	
13															
14															
15															

Summary: Total Usable Shots: 120 Acceptable Perforations below 1500 ft/s: 0 Acceptable
 Perforations (Complete Penetrations): 40 Acceptable
 Stops (Partial Penetrations): 80 Good

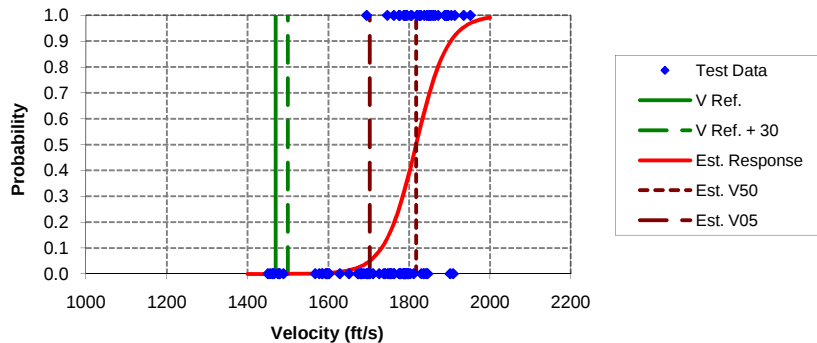
Test Data and Regression Model

Regression Analysis
 Regression Model: **Logistic**
 Model Parameters: β_0 : -46.6
 β_1 : 0.026

Estimated V50: **1817 ft/s**

Estimated V05: 1703 ft/s

Probability of perforation at NIJ reference velocity (1470 ft/sec): **0.0% Acceptable**



NATIONAL INSTITUTE OF JUSTICE COMPLIANCE TEST REPORT

Ballistic Limit Summary Data

Report Number: OBL001 Test ID: EAS09-001674 Report Date: 05/04/10
 Manufacturer: EASI Model Designation: QC Squared 3-A NIJ Armor Type: 3A
 Ammunition: .44 Mag 240/SJHP Threat 2 - New Armor Reference Velocity: 1430 ± 30 ft/s Water Submersion: No

Shot Number	Sample 16			Sample 16			Sample 17			Sample 17			Sample 18		
	Front	Panel		Back	Panel		Front	Panel		Back	Panel		Front	Panel	
	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note
	(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)	
1	1453.5	0					1475.5	0		1462.5	0		1439.5	0	
2	1495.5	0		1435.5	0	High v	1553.0	0		1546.5	0		1561.5	0	
3	1567.5	0		1573.5	0		1685.0	0		1660.5	0		1656.5	0	
4	1690.5	0		1671.0	0		1754.0	0		1753.5	0		1746.5	0	
5	1791.5	1		1750.0	1		1775.5	0		1809.5	1		1796.5	1	
6	1724.5	1		1697.0	1		1802.0	1		1745.5	1		1729.5	1	
7	1677	1		1667.5	0		1759.5	1		1700.5	0		1675.5	1	
8	1621.5	0		1699.5	1		1698.5	1		1751.5	1		1605.5	0	
9	1677.5	0		1637	0		1661.5	0		1698.5	0		1633.5	0	
10	1701	0		1694.5	0		1698.5	0		1762.5	1		1664.5	1	
11	1746.5	1		1760	0		1754.5	0		1690	0		1588.5	0	
12	1684.5	0		1778	1		1803.5	1		1745.5	1		1664.5	0	
13				1735.5	0										
14															
15															

Shot Number	Sample 18			Sample 19			Sample 19			Sample 20			Sample 20		
	Back	Panel		Front	Panel		Back	Panel		Front	Panel		Back	Panel	
	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note	Avg. Vel.	Perf	Note
	(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)		(ft/sec)	(Y=1/N=0)	
1	1435.5	0		1565.5	0		1472.5	0		1457.5	0		1438.5	0	
2	1556.5	0		1689.5	0		1551.5	0		1553.5	0		1553.5	0	
3	1637.5	0		1762.5	0		1663.5	0		1679.0	0		1671.5	1	
4	1749.5	1		1805.0	1		1751.5	1		1762.0	1		1590.0	0	
5	1700.5	1		1656.0	1		1707.0	0		1689.0	1		1645.0	0	
6	1676.5	1		1671.5	0		1759.0	1		1639.0	0		1715.0	1	
7	1617	0		1698	0		1697	0		1689	0		1697	1	
8	1672.5	1		1728	0		1761	1		1726	0		1640	0	
9	1599	0		1802.5	1		1705.5	1		1769.5	1		1670	0	
10	1669.5	1		1779	0		1688.5	1		1724	1		1727.5	0	
11	1618.5	0		1802.5	1		1629	0		1670.5	0		1781	1	
12	1662.5	0		1747.5	1		1678.5	0		1726	0		1724.5	0	
13															
14															
15															

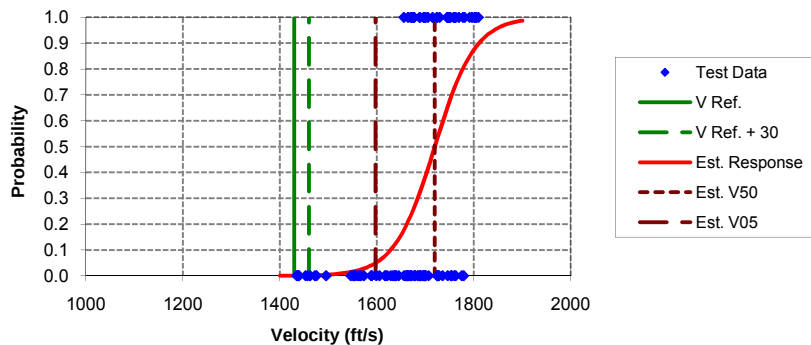
Summary: Total Usable Shots: 120 Good Perforations below 1460 ft/s: 0 Acceptable
 Perforations (Complete Penetrations): 44 Acceptable
 Stops (Partial Penetrations): 76 Acceptable

Test Data and Regression Model

Regression Analysis

Regression Model: **Logistic**Model Parameters: β_0 : -41.4 β_1 : 0.024Estimated V50: **1720 ft/s**

Estimated V05: 1597 ft/s

 Probability of perforation at NIJ reference
 velocity (1470 ft/sec): **0.1% Acceptable**


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Ballistic Limit Summary Data

Report Number: OBL001 Test ID: EAS09-001674 Report Date: 05/04/10
 Manufacturer: EASI Model Designation: QC Squared 3-A NIJ Armor Type: 3A

Threat 1 - Conditioned Armor

Ammunition: .357 SIG 125/FMJ
 Test Velocity: 1410 ± 30 ft/s Wet: No

Shot Number	Sample 25			Sample 25		
	Front Panel		Note	Back Panel		Note
	Avg. Vel. (ft/sec)	Perf (Y=1/N=0)		Avg. Vel. (ft/sec)	Perf (Y=1/N=0)	
1	1444.5	0		1440.5	0	
2	1563.5	0		1557.0	0	
3	1658.0	0		1652.0	0	
4	1780.0	1		1775.0	0	
5	1697.0	0		1864.5	0	
6	1752.0	0		1909.0	1	
7	1797.5	0		1834	1	
8	1845.5	1		1756.5	0	
9	1798	0		1808	0	
10	1851	1		1852	0	
11	1800.5	1		1903.5	1	
12	1763	1		1866	1	
13						
14						
15						

Summary:

Total Usable Shots: 24 Acceptable
 Perforations (CP): 9
 Stops (PP): 15

Perforations below 1440 ft/s: 0 Acceptable

Regression Analysis

Regression Model: **Logistic**
 Model Parameters: β_0 : -40.4
 β_1 : 0.022

Estimated V50: 1815 ft/s

Threat 2 - Conditioned Armor

Ammunition: .44 Mag 240/SJHP
 Test Velocity: 1340 ± 30 ft/s Wet: No

Shot Num	Sample 26			Sample 26		
	Front Panel		Note	Back Panel		Note
	Avg. Vel. (ft/sec)	Perf (Y=1/N=0)		Avg. Vel. (ft/sec)	Perf (Y=1/N=0)	
1	1357.5	0		1336.5	0	
2	1460.5	0		1426.5	0	
3	1595.5	0		1545.5	0	
4	1687.0	1		1616.0	0	
5	1636.0	1		1697.5	1	
6	1561.5	0		1622.5	0	
7	1607.5	0		1679.5	1	
8	1684.5	0		1635.5	0	
9	1764	1		1695	0	
10	1699.5	1		1736	1	
11	1646	0		1687	0	
12	1705	0		1720.5	0	
13						
14						
15						

Summary:

Total Usable Shots: 24 Acceptable
 Perforations (CP): 7
 Stops (PP): 17

Perforations below 1370 ft/s: 0 Acceptable

Regression Analysis

Regression Model: **Logistic**
 Model Parameters: β_0 : -46.6
 β_1 : 0.027

Estimated V50: 1696 ft/s

Overall Ballistic Limit Summary

Perforations below Vref + 30 ft/sec: 0 This requirement is for all Ballistic Limit tested samples - New and Conditioned
 This armor model meets the low perforation velocity performance requirements of NIJ Standard-0101.06 Section 7.9.5.

Probability of perforation at the P-BFS reference velocity This requirement is for New armors only

Threat 1: 0.0%

Threat 2: 0.1%

This armor model meets the estimated V05 performance requirements of NIJ Standard-0101.06 Section 7.9.5.